sented to me by Dr. Barbosa Rodriguez, appeared in Nature more than a year ago (vol. xxxv. p. 343). Dr. Rodriguez published a note on that specimen in the *Jornal do Commercio* of Rio de Janeiro for October 15, 1886. I state this as his note might easily be overlooked, not having appeared in a scientific periodical.

The last specimen received was caught at Autaz near the Madeira River in September 1887; it came, Dr. Rodriguez writes, from a mud-pool, whence it issued forth wriggling on the mud during rain-storms. My friend received it dead and in a state of incipient decomposition; he did all he could to insure its preservation, but when it reached me all I could save was the skeleton and portions of the skin and tougher muscles. These I have put in strong alcohol for future study. This specimen is considerably smaller than the one previously received, being, as far as I can judge, about 0m. 400 millim. in length.

At Autaz this fish is called *Trayra-boia*, or *Turum-boia*; the latter name is onomatopœic for *Turum*, which expresses the grunt made by the fish, and *boia* means "snake." On the Rio Mahu, an affluent of the Rio Branco, Dr. Rodriguez tells me that the name of this fish in the Makuchy dialect is *Aramô*.

Henry H. Giglioli.

Royal Zoological Museum, Florence, May 22.

Dreams.

Mr. R. L. Stevenson, in his "Chapter on Dreams" in *Scribner's Magazine* for January last, brings forward one difficult point that must have puzzled many dreamers besides himself. The point is that the dreamer is often in the position of an ignorant onlooker, who, only when the plot or story is complete, sees the drift and motive of the different incidents that have been enacted before his eyes by what Mr. Stevenson calls "the Little People who manage man's internal theatre."

Perhaps it is one step further on in the puzzle to have the interpretation only vouchsafed to one after awaking; and the following example may be of some interest.

Much of my dreaming goes on in the form of reading; and it once happened to me to awake while looking at the outside of a pamphlet I dreamt I was holding. I saw it vividly enough before me; it had a mud-coloured cover, and the title was printed on it in plain Roman capitals: "Food, or the astrology of every day." "But this is nonsense," I thought; until, still having a vivid view of the title before me, I observed that the rough brown paper had been rubbed up after the word "the," and that there was a wide gap between it and the "astrology." Evidently a letter was missing, and I at once conjectured that the word had been printed "gastrology." But this I did not arrive at till I was wide awake.

I come back to Mr. Stevenson's query, "Who are the Little People?" and how comes their amazing independence of their employers?

E. H.

Strange Rise of Wells in Rainless Season.

A house near Fareham, standing in its own grounds, is principally supplied with water by two wells, about 16 feet deep. They are usually quite full in winter, and gradually empty before autumn. Owing to the small amount of rain last winter, the beginning of March found the wells with only 3 feet and 2 feet of water respectively: when, after a continuance of north-east wind, *without rain*, but with half a gale blowing, the water in these wells rose 14 feet and 12 feet.

Can you or any of your readers explain this mystery? There is a tradition in the neighbourhood that it is customary with the wells in the district to rise with a heavy gale even without rain; and a similar phenomenon has been observed before by my informant.

E. H.

May 23.

Milk *v.* Lightning.

In Emin Pasha's letter published in Nature (vol. xxxvii. p. 583), the Sudan Arabs are said to have a superstition that fire kindled by a flash of lightning cannot be extinguished until a small quantity of milk has been poured upon it. A similar belief seems to have existed formerly in this country. The earliest register-book of this parish contains the following note:—

"In the yeare of our Lord 1601 and uppon ye 14 day of May beinge thursday ther was great thundringe and lightninge and ye fyer descendinge from heaven kindled in a white-thorne bush growinge neere to a mudd-wall in Brook-street westward from Thomas Wake his house, it burned and consumed ye bush and tooke into ye wall about on yeard then by milke brought in tyme it was quenched and it did noe more hurt."

John Cyprian Rust.

The Vicarage, Soham, Cambridgeshire, May 23.

The Renewed Irruption of *Syrrhaptes*.

Mr. Sclater having requested me to contribute to *The Ibis* an account of the present visitation of *Syrrhaptes* similar to that which I compiled for that journal in 1864, I would ask for information on the subject to be sent to me, and especially cuttings from foreign newspapers, the name of the publication and the date being always indicated thereon. I must add that I do trust my task will not be the unpleasant one of merely recording senseless slaughter. In 1863 the species bred both in Denmark and in Holland. There is no reason why it should not, if unmolested, breed this year in many parts of Britain. The visitations of 1872 and 1876 were of insignificant proportions, but that of the present year would seem to be of considerable magnitude, and sanguine hopes might be entertained as to the result if the malign influence of the "collector" could be neutralized or withstood.

Alfred Newton.

Magdalene College, Cambridge, May 27.

"The Shell-Collector's Hand-book for the Field."

As your reviewer (Nature, May 17, p. 51) has shown that the little book which bears the above title is certainly worth a large share of "powder and shot," I may, in all fairness, be allowed to reply to those strictures made by him which are the most unfair, and which I consider warrant a reply from me. In the first place, it is quite apparent that he has never used the "Authenticated British List" published by the Conchological Society, where he would have found *Clausilia parvula*, *C. solida*, and *Zonites draparnaldi* excluded, doubtless, on reliable authority; while *Bulimus Goodallii*, *Vertigo tumida*, and *Planorbis dilatatus* are included, also, doubtless, on reliable authority, as recognized members of the British fauna, even if they be "casuals." He has also, it is quite apparent, never read Prof. Macalister's "Introduction to Animal Morphology," where he will find it stated on p. 286 that "the operculum has always more conchiolin in its composition than the shell whose mouth it closes." He does not know, it is also quite apparent, that Pisidium and Sphærium are British fresh-water mussels, and *siphonated* British fresh-water mussels too, there being one siphon in the former and two in the latter genus (cp. the description of these genera in Westerlund's "Fauna of Sweden and Denmark"). He can scarcely know that the epiphragm has been called by some authors (as instance Macalister) the clausilium; and although recognizing this on p. 5 of my "Hand-book," I have described in a footnote to the genus Clausilium (p. 44) the only structure which we recognize to-day under that name. He does not know, it is evident, that Prof. Milnes Marshall ("Practical Zoology," p. 106) states that "the periostracum or outer layer is horny and uncalcified. To it the colour of the shell is due," and that "the middle layer" "is densely calcified, and has an opaque porcellanous appearance." And he scarcely knows that in Huxley and Martin's "Course of Elementary Instruction in Practical Biology," p. 274, the aperture of the shell is spoken of as the *peritreme* and not as the *peristome*, and that in the majority of works on comparative anatomy it is also solely mentioned under that name. I think it also my duty to tell your reviewer that the teeth-formulæ were not copied from Lankester, as he supposes, but from Woodward, and that upon comparison I find the copy correct (cp. Jeffrey Bell, "Comparative Anatomy and Physiology," p. 136).

In the second place, with regard to those other strictures which I can characterize by no other name than *mere whims*. It is a mere whim, for instance, to consider *Anodonta anatina* as a variety of *A. cygnea*, since such has never yet been generally recognized. It is a mere whim to believe that *Achatina acicula* should be *Cæcilianella acicula; Bulimus acutus* should be *Helix* (*Cochlicella*) *acuta; Zonites* should be *Hyalinia*," and I had rather remain with my old system of nomenclature than get so

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inextricably entangled in the medley of new systems made by Continental workers, all of which systems differ the one from the other as "chalk from cheese." It is a mere whim to imagine that chapters on "The Anatomy of a Snail" and "The Anatomy of a Fresh-water Mussel" should have been excluded since the basis of systematic zoology is anatomy. And it is a mere whim to cavil at the inclusion of the vars. *minor*, *maxima*, and "*albida*," (*exalbida*, if you please, Mr. Reviewer, for so was it named by Menke), and the monstrosity *sinistrorsum* of *Helix aspersa*, since Dr. Gwyn Jeffreys and Moquin-Tandon have named varieties and used variety-names, and since Prof. E. von Martens, than whom no better conchologist, expressly mentions that "it is certainly desirable that every local form, well-marked zoologically or geographically, should have a distinct name." And may I turn a reviewer on my own book, and ask myself how it is that I did not, as your reviewer desires, give the localities for every species, and make the book costly, and, by so doing, take it away from the reach of the poorer classes? Why also did I not give the definite localities for the now local species, when I considered rightly that some of them may turn up in other, and, perhaps, far distant spots to those now known? In conclusion, I would point out to your reviewer—for I must not occupy your valuable space to any greater extent—that as there is a virtue in the every-day affairs of this our mundane life which, to quote Seneca, is "the only immortal thing that belongs to mortality," so, as certainly, is there a virtue in right reviewing which is quite as exacting and quite as important to always bear in one's remembrance. J. W. WILLIAMS.

51 Park Village East, N.W.

IN reviewing Dr. Williams's little book, I wished not merely to point out the author's mistakes, but to guard young conchologists, to whom the book is addressed, from placing too great reliance on the statements it contains.

I felt also convinced that the author was not practically conversant with his subject; indeed, that his knowledge was purely derivative, and this the foregoing letter fully confirms.

I will not occupy space with a detailed criticism on the author's method of compilation, but will simply refer to a single instance, quoted to show his want of care in referring to the original sources of information, so needful in such a task. The method of numeration of the tooth-formula, referred to by me as incorrect at p. 7 of the "Hand-book," is now justified by the author, who quotes Woodward as his authority; but upon referring to my brother's "Manual" I find that my statement was fully justified by the fact that the quotation is *not correct*, it having been taken by Dr. Williams from Prof. Jeffrey Bell's "Comparative Anatomy," where my brother's name is given as the authority for the instances quoted, and not for the whole paragraph to which it is appended, and which does not appear in his book. To the second part of Dr. Williams's *whimsical* letter I feel sure it is needless to reply.

HENRY WOODWARD.

129 Beaufort Street, S.W., May 28.

Freaks of Nature.

I INCLOSE a letter from my grandson Charles, a boy, son of St. Vincent Erskine, the explorer, with whose travels you are probably acquainted.

This singular instance of a change in the habits of birds, consequent on the advance of civilization, is extremely important and interesting, as it evinces almost reasoning powers and adaptation of habits to circumstances. As you are aware, some birds in South Africa build their nests on the pendant boughs of willow-trees as a defence against snakes and iguanas.

These willows, like other trees in Natal, are rapidly becoming scarcer, as they are cut down, whilst the boys who take the nests increase. This is, no doubt, the cause of the birds changing their nests to the telegraph-wires, where they are also safer from their natural enemies.

It would be interesting to know whether similar instances occur elsewhere. D. ERSKINE.

47 Gratton Road, Kensington, May 25.

P.S.—It is remarkable also that the hole is at the side instead of the bottom, showing that the bird was aware that the situation was snake-proof. Darwin would have been glad of this proof of evolution.

WHILE watching the landscape of Natal between Ladysmith and Pietermaritzburg from a Natal Government Railway carriage, I saw some nests of the "golden weaver" bird. There were four of them hanging in a row, close together. They were the round kind, without the long arm. On one of the nests sat a cock weaver bird, but I saw no hens.

The nests seemed to be one or two years old, except one, which was greener than the others, and most certainly one of this season's. The chief peculiarity seemed to lie in the fact that the birds had woven grass round the wire for some six or eight inches, and two or three inches in circumference, before beginning to make the nest, and that the bird had to deal with a horizontal wire instead of a vertical stick or a branch. The bird always twists the grass round the branch (if he builds on a vertical twig) for some way up among the leaves and stalks, leaving the long ends free, thus forming his foundation. Weavers prefer to build on trees where the long slender twigs droop towards the ground, and so afford a nice vertical slender support. They are especially fond of the weeping-willow, whose slender switches generally branch off into two small shoots at the end: between these the bird loves to build his nest. Besides, the willow has lots of leaves very near together, and so holds the straws very well. On the wire he had no such support, but had to trust to his own ingenuity to overcome the novel situation, which task he seems to have accomplished very well.

The entrance to these nests was not at the bottom, as usual, but by a hole in the side, and all the nests did not look the same way.

I suppose there was only one nest a season or two ago, with a single pair of birds; soon we shall have a long string, or rather wire, of these ingeniously built homes with their happy quarrelsome occupants, making enough noise to stop all the messages ever sent that way. They will hear all the "Government" secrets: then we will be able to say truly, "A little bird told me." C. H. ERSKINE.

WHIRLWINDS, WATERSPOUTS, STORMS, AND ROTATING SPHERES.[1]

IT is often necessary, in many branches of science, to halt in our steady progress along the beaten roads of induction, and say, "*Fiat experimentum*." We may not always be able by this means to reproduce exactly all the physical conditions of the phenomenon, we are investigating, or to evolve a test crucial enough to enable us to decide between rival hypotheses. Nevertheless, the power we thus gain, especially in the case of an atmospheric phenomenon, of seeing the entire system of action in a *coup d'œil*, of gauging its relative proportions, and of examining its dependence and effects on its *entourage*, can hardly be over-rated.

Such would appear to have been M. Weyher's object in the delicate and ingenious experiments which he has so skilfully elaborated and described in the pamphlet of 91 pages before us.

The physical theory of atmospheric eddies, including the rotating flat disk or cyclone, and the rotating column which manifests itself as a tornado, waterspout, or dust-whirl, according to variations in its intensity and surrounding circumstances, has lately been developed to an extent not generally known, principally by Ferrel, Sprung, Oberbeck, and Marchi. It is therefore decidedly satisfactory to those who believe in the progress of meteorology by rational theory and deduction, to find that the motions exhibited in M. Weyher's experiments, in which the conditions in Nature are very fairly imitated, agree in every point with those which have been deduced from their physical theory.

Theory, for example, shows that a tornado is due primarily to an unstable condition of saturated air, accompanied by a gyrating motion (which may initially be very small, and which is practically always present to

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[1] "Sur les Tourbillons, Trombes, Tempêtes, et Sphères Tournantes: Étude et Expériences." Par C. L. Weyher. (Paris, 1887.)

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